

<b>EPA</b> United States Environmental Protection Agency Washington, DC 20460 <b>Work Assignment</b>						Work Assignment Number 02-16				
						<input type="checkbox"/> Other <input type="checkbox"/> Amendment Number:				
Contract Number EP-C-15-012			Contract Period   08/01/2015   To   07/31/2018 Base                      Option Period Number       2			Title of Work Assignment/SF Site Name NCEA Websites & Databases				
Contractor CSRA LLC					Specify Section and paragraph of Contract SOW 2.0, 2.2, 2.3, 2.4, 2.10, 2.15, 2.17, 3.1.2, 3.13					
Purpose: <input checked="" type="checkbox"/> Work Assignment <input type="checkbox"/> Work Assignment Close-Out <input type="checkbox"/> Work Assignment Amendment <input type="checkbox"/> Incremental Funding <input type="checkbox"/> Work Plan Approval						Period of Performance  From   08/01/2017   To   07/31/2018				
Comments: In accordance with clause B.1 immediate start is authorized for this work assignment beginning on August 1, 2017. If the work plan is not approved within 35 calendar days after receipt of the work plan, the contractor shall stop work.										
<input type="checkbox"/> Superfund                      Accounting and Appropriations Data <input checked="" type="checkbox"/> Non-Superfund										
SFO <input type="checkbox"/> Note: To report additional accounting and appropriations date use EPA Form 1900-69A. (Max 2)										
Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										
Authorized Work Assignment Ceiling										
Contract Period:		Cost/Fee:		LOE:						
08/01/2015   To   07/31/2018				0						
This Action:				3,200						
Total:				3,200						
Work Plan / Cost Estimate Approvals										
Contractor WP Dated:				Cost/Fee		LOE:				
Cumulative Approved:				Cost/Fee		LOE:				
Work Assignment Manager Name    Maureen Johnson  <div style="display: flex; justify-content: space-between;"> <div>_____ (Signature)</div> <div>_____ (Date)</div> </div>						Branch/Mail Code: Phone Number: 703-347-8611 FAX Number: 305-425-8314				
Project Officer Name    Nancy Parrotta  <div style="display: flex; justify-content: space-between;"> <div>_____ (Signature)</div> <div>_____ (Date)</div> </div>						Branch/Mail Code: Phone Number: 202-564-5260 FAX Number:				
Other Agency Official Name  <div style="display: flex; justify-content: space-between;"> <div>_____ (Signature)</div> <div>_____ (Date)</div> </div>						Branch/Mail Code: Phone Number: FAX Number:				
Contracting Official Name    Donna Reinhart <div style="display: flex; justify-content: space-between;"> <div> <b>DONNA</b>          _____          (Signature)       </div> <div>         Digitally signed by DONNA REINHART          DN: c=US, o=U.S. Government,          ou=USEPA, ou=Staff, Date=2017.07.20 15:15:17 -04'00'          REINHART, dnQualifier=0000010546       </div> </div>						Branch/Mail Code: Phone Number: 513-487-2114 FAX Number:				

**PERFORMANCE WORK STATEMENT**  
**CSRA EP-C-15-012**  
**Work Assignment No. 02-16**  
**Period of Performance: 8/1/17-7/31/18**

**I. ADMINISTRATIVE:**

**A. Title: Support for the NCEA Websites and Databases**

**B. Work Assignment Manager:**

Maureen Johnson  
Office of Research and Development,  
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**Alternate Work Assignment Manager:**

Susan Rieth  
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**C. Quality Assurance:**

The tasks in this work assignment do not require environmental measurements. Consistent with the Agency's quality assurance (QA) requirements, the contractor does not need to supplement the Contract Level Quality Assurance Project Plan (QAPP) or to prepare a Project-Specific Quality Assurance Project Plan (PQAPP). The contractor shall immediately notify the Project officer of any significant QA issues, and how they are being resolved addressed, in the monthly progress reports as specified below under Task 0.

**D. Background:**

The U.S. Environmental Protection Agency (EPA or Agency) has established the National Center for Environmental Assessments (NCEA) to provide the public with access to the best science in the form of research products related to human health and ecological risk assessments. On target with this, one of NCEA's critical goals is to support the ORD Research Priorities, these are new robust research programs that in varying levels of need, depend on the strong presence of NCEA's websites like the Exposure Factors Program/Hand Book and tool box (EPA-Expo-Box), the Benchmark Dose Software (BMDS), the Casual Analysis/Diagnosis Decision Information System (CADDIS), the Integrated Risk Information System (IRIS) database, the EPA RISK assessment website (which includes links to most of NCEA's products and publications), and various other NCEA websites that include guidance, training, and workshop materials that capture the full portfolio of NCEA's outreach initiatives.

**II. OBJECTIVE:**

The primary goal of all these systems and web sites is to enhance preparedness, utility and business resiliency, detection, response, and recovery efforts relative to assessing risk in the

environment, vulnerabilities, and threats if a natural calamity or incident occurs. Additionally, NCEA seeks innovative ways to distribute information to the targeted audience by utilization of emerging technologies especially in the area of Web 2.0. This not only allows NCEA to be more “green” in cutting back on the less environmentally friendly methods of communications, but also to demonstrate its alignment with the administration’s goals of making agency services and information more accessible to citizens so they can see value in their government.

Risk Assessment is one of the key areas of environmental protection all agency programs focus on and each of the systems (supported under this WA) have strong ties to assessments of water quality, the environment and human health. In each of these programs, NCEA seeks the best way to get information out to the correct and varied target audiences from our websites. We also require support for the dissemination of guidance and information materials related to the understanding of hazard assessment, dose response, risk characterization and risk communication within the mission of EPA.

The purpose of this work assignment is to: support new projects, on-going maintenance and long-term operation of all NCEA websites and databases in support of communicating, educating, and sharing the mission of the NCEA and the EPA. NCEA is the principal organization for production of EPA’s reports on human health and ecological risk assessments in the Office of Research and Development. Therefore, it is imperative that NCEA’s websites offer timely streamlined pathways (quick easy to use, task oriented and topical) to this research, models, and data technology. Based on our annual website statistics it is evident that NCEA’s websites (and interactive databases driving them) are critical to supporting thousands of researchers all around the world whether it is an immediate emergency or a long-time cleanup issue.

The expectations of this work assignment is for improved designs of the NCEA websites and database to meet our stakeholders and external (and internal) needs while complying with the latest Agency web guidance and web initiatives. To that end, this work assignment requires improvements to the NCEA websites that will incorporate the agency’s OneEPA web template design efforts, reduce any redundant, outdated content (referred to by the EPA web-guide as “ROT”) on the website, and reduce the cost of maintenance and development on the site through the use of this new technology and Agency approved software.

The tasks described in this work assignment will outline the steps necessary to achieve the work assignment’s goals. Working together, the various tasks will complement one another to produce a more efficient, cohesive public experience that will improve the usefulness of the website and support the business processes of the NCEA staff and divisions.

This work will be completed commensurate with Sections 3.2 and 3.4 of the Contract Level PWS. The level of effort estimated for this work assignment is **3,200 hours**.

To achieve this outcome, the contractor shall be expected to provide:

- 1) Operation and maintenance of the NCEA Database(s).

2) Development and maintenance of the NCEA websites based on Agency guidance, program changes, and new technology.

3) Web analytics for site usability/enhancement and improved usability.

4) Technical support by a Subject Matter Expert (SME) with expertise to provide guidance on areas of toxicology and/or database design and website development.

### **Requirements**

In order to perform the work under this work assignment the contractor must have:

- 2 or more staff members who have accounts on Drupal.org and provide their user ID's in order to verify this work experience/activity in the Drupal forum environment. They also need to have a minimum of 2 years of experience with either managing a large scale web site in Drupal or with engineering in a Drupal environment.
- 2 or more staff members on this work assignment who have accounts on EPA's Web mailing list or Editors-in-Chief mailing list for a minimum of 2 years to be knowledgeable with the EPA Web guidelines and standards of development. They should also have 1-2 years of experience with EPA's Drupal environment and have experience with the editor and webmaster roles in order to complete the task directives within this work assignment.
- 1 or more staff members on this work assignment with 2 or more years of experience in the following technologies: MySQL Database Administration, Oracle Database Administration, Oracle Application Development, ColdFusion Application Development, JavaScript coding, and integrating dynamic application development with a Drupal website.
- 1 or more staff members with a Master's degree or higher in toxicology to provide guidance and input as needed for the IRIS website.

The contractor must have staff that are skilled with the Drupal Web Content Management System (WCMS) software to have the ability to articulate design enhancements to the EPA Design Team (Office of Web Communication) in order to help improve the experience of visitors to the EPA websites under this work assignment.

### **III. TASK DETAIL:**

The contractor shall perform the following tasks:

#### **Task 0 - Work Plan Submission, WA Management and Reports:**

The contractor shall prepare a detailed work plan and budget for the accomplishment of the indicated tasks in accordance with the clause Work Assignments (EPAAR 1552.211-74). The work plan shall include a schedule, staffing plan, level of effort (LOE), and cost estimate for each task, the contractor's key assumptions on which staffing plan and budget are based, and



qualifications of proposed staff. If a subcontractor(s) is proposed and subcontractors are outside the local metropolitan area, the contractor shall include information on plans to manage work and contract costs.

In addition, the work plan shall specify that a Supplemental Project Specific Quality Assurance Project Plan (SQAPP) appending the Contract QAPP or a PQAPP is not required.

This task also includes monthly progress and financial reports. Monthly financial reports must include a table with the invoice LOE and cost amount broken out by the tasks in this WA. In addition, this table should provide costs and estimates at the sub-task level and have the capability to track costs to the type of work performed. It is recommended that all costs associated with projects and/or work requests shall be reported in the monthly report as well as at an aggregate level. The work plan shall also provide an analysis of the existing and projected constraints, and the feasibility of accomplishing the project's purpose.

Secondly, the contractor shall participate in bi-weekly meetings to discuss open work requests under the various task in this work assignments, get technical clarification, or discuss any issues that may have come up since the assignments were given. As a result of these meetings, the contractor will submit meeting minutes with a list of assignments, and then at the end of the month, submit these as part of the monthly progress report.

The purposes of the progress report are to list completed deliverables and accomplishments. The monthly report can also include details on the finished assignments, the steps toward completing the larger tasks as they are done, any problems they may have encountered, or any changes in the schedule for completing the work request. The contractor shall continually review the types of work requests that are assigned and propose improvements, striving to implement efficiencies in performance when complimentary requirements are issued or the process can be improved in the work that is done. The contractor shall assure that duplication of effort relative to other ongoing work assignments under this contract is not occurring.

Lastly, the contractor shall immediately alert the EPA WACOR to any anticipated event under the work assignment which may result in incurring an estimated \$20,000 or more cost, funded by EPA, specific to that event (e.g., meeting or training). Those costs would include travel of prime and consultant personnel, planning and facilitation costs, audio/visual, and rental of venue costs. The EPA WACOR will prepare approval internal paperwork for the event and will advise the contractor when appropriate signatures have been obtained. At that point, effort can proceed for the event. If the event is being sponsored by another EPA organization, the organization providing the planning is responsible for the approval.

Deliverables: Work plan and monthly progress and financial reports.

### **Task 1 - Operations and support for the NCEA Databases:**

With the vast number of reports, tools and websites that NCEA uses to serve content to the public we use several Oracle backend databases to manage many of these products. This first

task will require the support, operation and maintenance of these databases. In addition, to database administration (adding users, managing roles, writing SQL scripts for database updates), the contractor shall maintain data entry screens for the EPA's maintenance of the content stored in these back-end systems. The current interfaces to these databases is through ColdFusion based Administration systems.

**Sub-Task 1.1: Support of the NCEA Tables residing in the EIMS Database**

Support of this database includes on-going operations and maintenance to include, but not be limited to: new table development, retirement of tables/removal, data entry form improvements, system integration for better quality control, link checking, improved searching methods, exports, uploads, downloads, web analytics, or archiving retired content.

**Sub-Task 1.1.1 Support for the EPA-Expo-Box Application**

Provide database administrative or dynamic application development (to front-end software to an Oracle database) for the Expo-Box application. Provide operation and maintenance per specifications outlines in sub-task 1.1.

**Sub-Task 1.1.2 Support for the EPA-Eco-Box Application**

Provide database administrative or dynamic application development (to front-end software to an Oracle database) for the Eco-Box application. Provide operation and maintenance per specifications outlines in sub-task 1.1.

**Sub-Task 1.1.3 Support for the Water Quality Climate Review Application**

Provide database administrative or dynamic application development (to front-end software to an Oracle database) for the WQA-Report application. Provide operation and maintenance per specifications outlines in sub-task 1.1.

**Sub-Task 1.2: Support for the Integrated Risk Information System (IRIS) Database**

Support of this database includes on-going operations and maintenance to include, but not be limited to: new table development, retirement of tables/removal, data entry form improvements, system integration for better quality control, link checking, improved searching methods, exports, uploads, downloads, web analytics, or archiving retired content.

**Sub-Task 1.3: Support for the Casual Analysis Diagnosis Decision Information System (CADDIS) Database**

Support of this database includes on-going operations and maintenance to include, but not be limited to: new table development, retirement of tables/removal, data entry form improvements, system integration for better quality control, link checking, improved searching methods, exports, uploads, downloads, web analytics, or archiving retired content.

Deliverables: Scripts shall be sent to the administrators in the NCC. The WACOR shall be copied on all correspondence with the system administrators. Exports from the databases may be in the form of spreadsheets, scripts, or Oracle exports and shall be sent directly to the WACOR and accounted for in the monthly progress reports.

## **Task 2 - Development to the NCEA websites based on Agency guidance, program changes, and new technology:**

The contractor shall provide the following as it pertains to products from NCEA program:

- Provide maintenance for the NCEA Web sites, which includes site updates as necessary to comply with ORD and Agency Web requirements, and/or changes in the EPA server environment or in the supporting database(s).
- Provide other modifications or enhancements as specified in Technical Directives (TDs) throughout the period of performance, including enhancements of selected Drupal pages, addition of new static and dynamic web pages, and redesign of selected pages to:
  - Fulfill the mission of the Agency and any related Web initiatives
  - Improve the performance of the site,
  - Comply with Section 508 for Accessibility, and
  - Improve the usability based on recommendations from NCEA, ORD or Agency stakeholder feedback.
- Provide Section 508 compliant reports (in PDF format) for posting on the NCEA websites and databases.
- Verify Section 508 compliance of products generated from within NCEA.
- Provide support in the review the site for broken links, redundant, outdated, trivial (ROT) content, usability/focus groups, and other EPA initiatives to improve the function of the website.

The contractor shall be responsible for maintaining the NCEA Internet (and in some cases Intranet) websites and performing any related web support as requested. This task includes the following sub-tasks:

### **Sub-Task 2.1: Support for the Risk Assessment (RISK) Websites**

All new and major revisions to web pages shall be reviewed and tested by the contractor, then by the content provider and/or the WACOR. Routine or enhanced modifications shall be tested by the contractor, before they are sent to the WACOR for review prior to deployment. All web pages that are part of this website shall be consistent with ORD and Agency policies regarding the appearance, format, standards and function of Internet and Intranet web pages. Additionally, the web pages on the Risk websites shall not compromise the security procedures enforced through the NCC facility in RTP, NC.

This sub-task includes providing support to the following website(s):

- <https://www.epa.gov/risk> (or any future aliases this may be called)
- <https://www.epa.gov/erasc> (or any future aliases this may be called)
- <https://www.epa.gov/aboutepa> (as it related to NCEA pages)
- <https://www.epa.gov/healthrisk> (or any future aliases this may be called)

#### **Sub-Task 2.1.1 Support for the EPA Expo-Box (Expo-box) Website**

All new and major revisions to Drupal web pages shall be reviewed and tested by the contractor, then by the content provider and/or the WACOR. Routine or enhanced modifications shall be tested by the contractor, before they are sent to the WACOR for review prior to deployment. All web pages shall be consistent with ORD and Agency policies regarding the appearance, format, standards and function of Internet and Intranet web pages. Additionally, the web pages on the ISA website shall not compromise the security procedures enforced through the NCC facility in RTP, NC.

This sub-task includes providing support to the following website(s):

- <https://www.epa.gov/expobox> (or any future aliases this may be called)
- <https://cfpub.epa.gov/ncea/risk/recorddisplay.cfm?deid=20563> (exposure factors program)

#### **Sub-Task 2.1.2 Support for the EPA-Eco-Box (Eco-box) Website**

All new and major revisions to web pages shall be reviewed and tested by the contractor, then by the content provider and/or the WACOR. Routine or enhanced modifications shall be tested by the contractor, before they are sent to the WACOR for review prior to deployment. All web pages shall be consistent with ORD and Agency policies regarding the appearance, format, standards and function of Internet and Intranet web pages. Additionally, the web pages on the ISA website shall not compromise the security procedures enforced through the NCC facility in RTP, NC.

This includes providing support to the following website(s):

- <http://www.epa.gov/ecobox> (or any future aliases this may be called)

#### **Sub-Task 2.1.3 Support for the Hydraulic Fracturing (HF-Study) Website**

All new and major revisions to web pages shall be reviewed and tested by the contractor, then by the content provider and/or the WACOR. Routine or enhanced modifications shall be tested by the contractor, before they are sent to the WACOR for review prior to deployment. All web pages shall be consistent with ORD and Agency policies regarding the appearance, format, standards and function of Internet and Intranet web pages. Additionally, the web pages on the ISA website shall not compromise the security procedures enforced through the NCC facility in RTP, NC.

This includes providing support to the following website(s):

- <http://www.epa.gov/hfstudy> (or any future aliases this may be called)

#### **Sub-Task 2.1.4 Support for the Provision Peer Reviewed Toxicity Values for Superfund (PPRTV) Website**

All new and major revisions to web pages shall be reviewed and tested by the contractor, then by the content provider and/or the WACOR. Routine or enhanced modifications shall be tested by the contractor, before they are sent to the WACOR for review prior to deployment. All web

pages shall be consistent with ORD and Agency policies regarding the appearance, format, standards and function of Internet and Intranet web pages. Additionally, the web pages on the ISA website shall not compromise the security procedures enforced through the NCC facility in RTP, NC.

This includes providing support to the following website(s):

- <https://www.epa.gov/risk/pprtv> (or any future aliases this may be called)

### **Sub-Task 2.2: Support for the Integrated Science Assessments (ISA) Website**

All new and major revisions to web pages shall be reviewed and tested by the contractor, then by the content provider and/or the WACOR. Routine or enhanced modifications shall be tested by the contractor, before they are sent to the WACOR for review prior to deployment. All web pages shall be consistent with ORD and Agency policies regarding the appearance, format, standards and function of Internet and Intranet web pages. Additionally, the web pages on the ISA website shall not compromise the security procedures enforced through the NCC facility in RTP, NC.

This includes providing support to the following website(s):

- <http://www.epa.gov/isa> (or any future aliases this may be called)
- <https://hero.epa.gov/hero/> (or any future aliases this may be called)

### **Sub-Task 2.3: Support for the Integrated Risk Information System (IRIS) Website**

All new and major revisions to web pages shall be reviewed and tested by the contractor, then by the content provider and/or the WACOR. Routine or enhanced modifications shall be tested by the contractor, before they are sent to the WACOR for review prior to deployment. All web pages shall be consistent with ORD and Agency policies regarding the appearance, format, standards and function of Internet and Intranet web pages. Additionally, the web pages on the IRIS websites shall not compromise the security procedures enforced through the NCC facility in RTP, NC.

This includes providing support to the following website(s):

- <http://www.epa.gov/iris> (or any future aliases this may be called)
- <http://intranet.epa.gov/ncea/iristrack/index.htm> (or any future aliases this may be called)
- <https://cfint.rtpnc.epa.gov/ncea/iristrac/index.cfm>
- <http://www.epa.gov/dioxin> (or any future aliases this may be called)

### **Sub-Task 2.4: Support for the Benchmark Dose Modeling System (BMDS) website**

All new and major revisions to web pages shall be reviewed and tested by the contractor, then by the content provider and/or the WACOR. Routine or enhanced modifications shall be tested by the contractor, before they are sent to the WACOR for review prior to deployment. All web pages shall be consistent with ORD and Agency policies regarding the appearance, format, standards and function of Internet and Intranet web pages. Additionally, the web pages on the

BMDS website shall not compromise the security procedures enforced through the NCC facility in RTP, NC.

This includes providing support to the following website(s):

- <http://www.epa.gov/bmds>

#### **Sub-Task 2.5: Support for the Causal Assessment (CADDIS) Website**

All new and major revisions to web pages shall be reviewed and tested by the contractor, then by the content provider and/or the WACOR. Routine or enhanced modifications shall be tested by the contractor, before they are sent to the WACOR for review prior to deployment. All web pages shall be consistent with ORD and Agency policies regarding the appearance, format, standards and function of Internet and Intranet web pages. Additionally, the web pages on the CADDIS websites shall not compromise the security procedures enforced through the NCC facility in RTP, NC.

This includes providing support to the following website(s), but it may include the waters of the US, mountaintop mining and other ecological assessments topics done by NCEA:

- <http://www.epa.gov/caddis> (or any future aliases this may be called)
- <http://www.epa.gov/bristolbay>

#### **Sub-Task 2.6: Support for the Weather-Related Website**

All new and major revisions to web pages shall be reviewed and tested by the contractor, then by the content provider and/or the WACOR. Routine or enhanced modifications shall be tested by the contractor, before they are sent to the WACOR for review prior to deployment. All web pages in this web area shall be consistent with ORD and Agency policies regarding the appearance, format, standards and function of Internet and Intranet web pages. Additionally, the web pages on the NCEA weather-related websites shall not compromise the security procedures enforced through the NCC facility in RTP, NC.

This includes providing support to the following website(s):

- <https://www.epa.gov/risk/global-change-research-program-products-and-publications> (or any future aliases this may be called)
- <https://www.epa.gov/climate-research> (or any future aliases this may be called)

##### **Sub-Task 2.6.1 Support for the Water Quality Climate Review (WQCR) Website**

All new and major revisions to web pages shall be reviewed and tested by the contractor, then by the content provider and/or the WACOR. Routine or enhanced modifications shall be tested by the contractor, before they are sent to the WACOR for review prior to deployment. All web pages shall be consistent with ORD and Agency policies regarding the appearance, format,

standards and function of Internet and Intranet web pages. Additionally, the web pages on the ISA website shall not compromise the security procedures enforced through the NCC facility in RTP, NC.

This includes providing support to the following website(s):

- <https://www.epa.gov/ccwqa> (or any future aliases this may be called)

#### **Sub-Task 2.6.2 Support for the Integrated Climate Land-Use (ICLUS) Website**

All new and major revisions to web pages shall be reviewed and tested by the contractor, then by the content provider and/or the WACOR. Routine or enhanced modifications shall be tested by the contractor, before they are sent to the WACOR for review prior to deployment. All web pages shall be consistent with ORD and Agency policies regarding the appearance, format, standards and function of Internet and Intranet web pages. Additionally, the web pages on the ISA website shall not compromise the security procedures enforced through the NCC facility in RTP, NC.

This includes providing support to the following website(s):

- <http://www.epa.gov/iclus> (or any future aliases this may be called)
- <https://globalchange.epa.gov> (or any future aliases this may be called)

#### **Sub-Task 2.6.3 Support for the Traits Database and Website**

All new and major revisions to web pages shall be reviewed and tested by the contractor, then by the content provider and/or the WACOR. Routine or enhanced modifications shall be tested by the contractor, before they are sent to the WACOR for review prior to deployment. All web pages shall be consistent with ORD and Agency policies regarding the appearance, format, standards and function of Internet and Intranet web pages. Additionally, the web pages on the ISA website shall not compromise the security procedures enforced through the NCC facility in RTP, NC.

This includes providing support to the following website(s):

- <https://www.epa.gov/risk/traits-data-sources-and-metadata> (or any future aliases this may be called)

#### **Sub-Task 2.7: Support for the Development of New NCEA Websites**

The contractor shall be responsible for overseeing updates to the NCEA web sites (listed above) by adhering to the EPA Web guidelines at <http://www.epa.gov/webguide>. The contractor may be asked to make updates to these based on new technology or EPA Web Guidance as new direction becomes available. Specifically, this task may provide contractor support to provide a range of strategic communications and outreach requests to develop new features to our web sites and databases based on the newest technologies that EPA Web is considering. Code re-use is recommended with any enhance that may affect our web sites.



This task may include the evaluation of Web 2.0 technology to include but not be limited to:

- Development of the NCEA web sites in the newest Agency Web standards and technology, utilizing efficiencies of the latest Web 2.0 technology/applications.
- Development of media (YouTube, podcasts, etc.) to promote the information of NCEA's research.
- Development of on-line training or support web sites for webinars to promote the information of NCEA research.
- Use of XML, Drupal, Twitter, Govdelivery, Blogging, or RSS feeds to promote the use of NCEA research to a wider audience.
- Development of web sites or databases using more sustainable solutions (with technology).
- Development of improved integration and sharing with like systems/databases across Government-wide platforms, in an effort to support data sharing or access via open data initiatives (like NSCEP, SEMS, SI, NARA, e-Chem portal, Data.gov, etc.).

Deliverables: The contractor shall provide updates to the websites under Task 2 as needed, copying the WACOR on all correspondence regarding major deliverable in the monthly progress report. For estimating purposes only, the contractor shall assume they will provide quarterly reviews and corrections for missing metadata, broken links and ROT on all NCEA Websites; develop & implement improvements or updates to a minimum of two websites annually to a maximum of six websites; and will prepare a minimum of 50 to a maximum of 900 PDFs for posting.

The contractor shall provide Monthly Progress Reports outlining any work performed under this task.

### **Task 3 - Web Analysis and Summary Reports:**

The contractor may be asked to provide two (2) reports produced by analyzing EPA's Web Analytics (<https://www.epa.gov/web-analytics>) for NCEA web sites that would include (1) the results of these tools, and (2) CSRA's recommendations for improvements to be implemented as part of Task 2. This means they will:

- Provide a summary report with information on web site analysis using EPA's tools (Google Analytics, Sitebeam, etc.) as listed on the page <https://www.epa.gov/web-analytics>.
- Perform web site usability testing to improve the use of the site and develop personas for site usage design.
- Provide link checking reports, fix broken links and note external links (as outlined in the webguide) on all the NCEA web sites pages.

Deliverables: The contractor shall provide a consolidated report with these results as a MS Word file and as a 508 compliant PDF. These reports shall include web usage statistics (graphs) for all these web sites listed in task 2 and include any other related data. For estimating purposes only, the contractor shall assume they will provide (2) comprehensive



reports; they will perform 1 -2 usability tests on the web sites defined in Task 2 using EPA analytical tools listed above; and will make recommendations in theses report that should improve the statistics to these sites by a minimum of 12% over the course of a year.

The contractor shall include in the Monthly Progress Report any work performed under this task.

#### **Task 4 - Technical Consulting:**

The contractor shall provide technical Subject Matter Expert (SME) support with expertise to provide guidance on areas of toxicology (when needed), website development, and database administration.

The contractor shall be responsible for providing individual subject matter experts (SME) with expertise to provide technical support in the following areas (on a case-by-case basis):

- Toxicology (Risk Assessment, Dose-response, Hazard Identification, IRIS Assessments, etc.)
- Database Administration and Development (Ajax, Apex, Oracle, Access, SQLplus, MySQL, etc.)
- Website Development (Drupal, JavaScript, Flash, Sharepoint, 508 compliances, etc.)

Under this task the SME may be asked to provide a technical review on any new technology to the website or database design issue related to operating NCEA's websites. This may also include migrating new web products for the NCEA websites (see listed in Task 2) to the EPA environment, database development support, or any website improvements. Technical review/commenting/editing may be necessary before new websites are released to the public.

SME's with a toxicological background shall be asked to review implications of updates or improvements in relation to the IRIS website and databases.

Deliverables: The contractor shall provide written correspondence to the WACOR on anything related to this task. For estimating purposes only, the contractor shall assume the SME may be asked to attend at a minimum two face-to-face discussions (to a maximum of 25 phone-based technical issues discussions) about the improvements discovered in Tasks 1-3.

The contractor shall include in the Monthly Progress Report any work performed under this task.

#### IV. SCHEDULE OF DELIVERABLES:

Specific deliverables, by Task, are detailed in the table below. All work will be determined by technical direction.

The contractor should plan to attend bi-weekly meetings with the WACOR to review work assignments (outlined in the TDs) to discuss details of the work, clarification of requirements, and schedule of deliverables. Anything agreed in these discussions should be documented by the contractor and emailed to the WACOR for confirmation. All deliverables and schedules should be listed in the progress report for official notification of receipt from the EPA.

TASK No.	DELIVERABLE	DATE DUE TO EPA
<b>Task 0 - Workplan Submission</b>		
	Workplan and budget	According to contract
	Monthly progress reports	Monthly
<b>Task 1 – Database Support</b>		
	System scripts & exports	As requested by technical direction
	Web Analytics	Monthly
<b>Task 2 – Website Support</b>		
	Standard Template Web Design and Development in Drupal	To be determined by written technical direction; an exact date cannot be determined prior to task assignments and management priorities.
	PDF production and 508 Verification	
	Customized Design/ embedded Java as needed	
	Graphic Design	
	PDF-rework	
	Web site staging and deployment	
	Training	
	Reporting on broken links, usability, web analytics	
<b>Task 3 – Web Analytics</b>		
	Run analysis on the web sites listed above (in Task 2) through the EPA's Web Analytics tool suite for review and reporting.	Quarterly

Summary reports of results should include underlining data and contractor's analysis/recommendations.	As requested by written technical direction
<b>Task 4 – Technical Consulting</b>	
Document assistance and scientific / technical support	To be determined by written technical direction; an exact date cannot be determined prior to receiving stakeholder or management feedback
Support international coordination (attend up to 6 webinars)	
Support for utility SMEs (up to 5 trips)	

## V. MISCELLANEOUS:

### **Software Application Files and Accessibility:**

Software application files, if delivered to the Government, shall conform to the requirements relating to accessibility as detailed to the 1998 amendments to the Rehabilitation Act, particularly, but not limited to, § 1194.21 Software applications and operating systems and § 1194.22 Web-based intranet and internet information and applications. See:

<http://www.section508.gov/>

Regarding FITARA, online publications of maps will leverage EPA's GeoPlatform technical architecture, hardware and software, to the fullest extent possible for public search and discovery. Quality assurance and metadata support should adhere to Agency approved Geospatial procedures and standards, see: <https://www.epa.gov/geospatial/geospatial-policies-and-standards> . All geospatial metadata will, as required by OMB, be published in EPA's Environmental Data Gateway which serves Data.gov, see: <https://edg.epa.gov/metadata/catalog/main/home.page>

Preferred text format:	MS Word, 16.0 or higher (Office 2013 or higher)
Preferred presentation format:	Power Point, Office 2013 or higher
Preferred graphics format:	Each graphic is an individual JPG or GIF file, or Adobe Illustrator file
Preferred portable format:	Adobe Acrobat, version 11.0 or higher
Preferred technology:	Drupal 7, SharePoint, ColdFusion, Apex, Oracle, JavaScript

All products delivered under this work assignment will require 508 compliances (unless an exception is made) and will include metadata for websites developed or PDFs posted to the EPA Website per the EPA web guidance standard (see <http://www.epa.gov/webguide> ).

### **Reporting Requirements:**

- Monthly Progress Reports (including a progress evaluation discussion)
- Financial Reports (with table of task and sub-task totals).

## **VI. TRAVEL:**

The contractor shall anticipate no more than two to four face-to-face trips and two (2) SME trips in support of this WA over the duration of the performance period. Travel will be directly related to the scope of this Work Assignment and support advancement of the work under these Tasks as well as the EPA's Mission to ensure protection of human health and the environment.

## **VII. MEETINGS, CONFERENCES, TRAINING EVENTS, AWARD CEREMONIES AND RECEPTIONS:**

All appropriate clearances and approvals required by Agency policy in support of any and all conference related activities and expenses, including support of meetings, conferences, training events, award ceremonies and receptions, including the form 5170 for all meetings costing more than \$20,000, shall be obtained by the EPA CL-COR as needed and provided to the Contracting Officer (CO). Work under conference related activities and expenses shall not occur until this approval is obtained and provided by the EPA CL-COR.

## **VIII. CONTRACTOR IDENTIFICATION:**

Contractor personnel shall always identify themselves as contractor employees by name and organization and physically display that information through an identification badge. Contractor personnel are prohibited from acting as the Agency's official representative. The contractor shall refer any questions relating to the interpretation of EPA policy, guidance, or regulation to the CO, CL-COR and/or WACOR.

## **IX. PRINTING:**

All copying and printing shall be accomplished within the limitations of the printing clause of the contract.

## **X. TECHNICAL DIRECTION:**

The Contract level COR or an authorized individual is permitted to provide technical direction. Technical direction must be within the statement of work of the contract and includes: (1) Direction to the contractor which assists the contractor in accomplishing the Statement of Work, (2) Comments on and approval of reports or other deliverables. Technical direction will be issued in writing or confirmed in writing within seven (7) calendar days after verbal issuance.

One copy of the technical direction memorandum will be forwarded to the Contracting Officer and the Contract Level Contracting Officer Representative.

#### **XI. QUALITY ASSURANCE SURVEILLANCE PLAN:**

The requirements contained in this WA are considered performance-based, focusing on the Agency's desired results and outcomes. The contractor shall be responsible for determining the most effective means by which these requirements will be fulfilled. In order to fulfill the requirements, the contractor shall design innovative processes and systems that can deliver the required services in a manner that will best meet the Agency's performance objectives. This performance-based requirement represents a challenge to the contractor to develop and apply innovative and efficient approaches for achieving results and meeting or exceeding the performance objectives, measures, and standards in Attachment 4 of the contract. The Contractor's performance will be reflected in the positive or negative evaluation offered by the Agency in the Contractor Performance Evaluation (CPE) which is evaluated annually (per the "Contractor Performance Evaluation" clause in the contract). The WACOR shall submit a complete annual review of the areas outlined in the Quality Assurance Surveillance Plan (QASP), included in Attachment 4 of the contract, which will then be utilized by the Contract Level Contracting Officer's Representative in preparing the overall evaluations submitted annually in response to the Contractor Performance Evaluation requirements in the contract.

<b>EPA</b> United States Environmental Protection Agency Washington, DC 20460 <b>Work Assignment</b>		Work Assignment Number 02-18								
		<input type="checkbox"/> Other <input type="checkbox"/> Amendment Number:								
Contract Number EP-C-15-012	Contract Period   08/01/2015   To   07/31/2018 Base                      Option Period Number      2	Title of Work Assignment/SF Site Name Impact of Material Mgmt Applic								
Contractor CSRA LLC		Specify Section and paragraph of Contract SOW 2.2, 2.10, 2.16, 2.4								
Purpose: <input checked="" type="checkbox"/> Work Assignment <input type="checkbox"/> Work Assignment Close-Out <input type="checkbox"/> Work Assignment Amendment <input type="checkbox"/> Incremental Funding <input type="checkbox"/> Work Plan Approval		Period of Performance  From   08/01/2017   To   07/31/2018								
Comments: In accordance with clause B.1 immediate start is authorized for this work assignment. If the work plan is not approved within 35 calendar days after receipt of the work plan, the contractor shall stop work.										
<input type="checkbox"/> Superfund                      Accounting and Appropriations Data <input checked="" type="checkbox"/> Non-Superfund										
SFO <input type="checkbox"/> Note: To report additional accounting and appropriations date use EPA Form 1900-69A. (Max 2)										
Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										
Authorized Work Assignment Ceiling										
Contract Period:		Cost/Fee:		LOE:						
08/01/2015   To   07/31/2018				0						
This Action:				4,500						
Total:				4,500						
Work Plan / Cost Estimate Approvals										
Contractor WP Dated:				Cost/Fee		LOE:				
Cumulative Approved:				Cost/Fee		LOE:				
Work Assignment Manager Name    Thabet Tolaymat						Branch/Mail Code:				
_____ (Signature)                      (Date)						Phone Number: 513-487-2860				
						FAX Number:				
Project Officer Name    Nancy Parrotta						Branch/Mail Code:				
_____ (Signature)                      (Date)						Phone Number: 202-564-5260				
						FAX Number:				
Other Agency Official Name						Branch/Mail Code:				
_____ (Signature)                      (Date)						Phone Number:				
						FAX Number:				
Contracting Official Name    Donna Reinhart						Branch/Mail Code:				
_____ (Signature)						Phone Number: 513-487-2114				
						FAX Number:				

Work Assignment Form (WebForms v1.0)

**DONNA**  
**REINHART**

Digitally signed by DONNA REINHART

DN: c=US, o=U.S. Government,  
ou=USEPA, ou=Staff, cn=DONNA  
REINHART, dnQualifier=0000010546  
Date: 2017.09.07 07:34:15 -04'00'

**WORK ASSIGNMENT  
PERFORMANCE WORK STATEMENT (PWS)**

**Contract No. EP-C-15-012**

**Work Assignment: WA-02-18**

**WACOR:**      **Name:**                      **Thabet Tolaymat**  
                  **Branch:**                      **Materials Management Branch**  
                  **Division:**                      **Land and Materials Management Division**  
                  **Office:**                              **Office of Research and Development**  
                  **Phone:**                              **513-487-2860**  
                  **FAX:**                                **513-569-7879**  
                  **E-mail:**                              **Tolaymat.thabet@epa.gov**  
                  **Mail code:**                          **CHL-113**  
                  **Street Address:**                  **26 West Martin Luther King Drive**  
                  **City, State, Zip:**                  **Cincinnati, Ohio, 45268**

**Alt WACOR:** **Name:**                      **David Carson**  
                  **Branch:**                      **Materials Management Branch**  
                  **Division:**                      **Land and Materials Management Division**  
                  **Office:**                              **Office of Research and Development**  
                  **Phone:**                              **513-569-7527**  
                  **FAX:**                                **513-569-7677**  
                  **E-mail:**                              **carson.david@epa.gov**  
                  **Mail code:**                          **116 CHL**  
                  **Street Address:**                  **26 West Martin Luther King Drive**  
                  **City, State, Zip:**                  **Cincinnati, Ohio, 45268**

**Period of Performance: Effective date of WA through July 31, 2018**

**Title:    Impact of Materials Management Applications**

**PWS Sections: 2.2, 2.10, 2.16, 2.4**

**I. PURPOSE:**

The purpose of this work assignment is to evaluate the impact of sustainable materials management on the environment including groundwater. The project will provide information that would enhance US EPA, states and communities to implement decision making with regards to sustainable materials management.

To achieve this purpose the contractor shall be expected to: evaluate secondary data and conduct virtual and in person meetings with key members of the research community.

The intended audience of this project are EPA's Office of Solid Waste and Emergency Response, regional offices and other federal agencies. This project supports programmatic support needs related to our national all hazards homeland security responsibilities by: providing data and information that would lead to more accurate accounting of our solid waste management systems and lead to a higher level resiliency

in our materials management systems.

Other partners and external offices or agencies which should be included in coordination, and the nature of their involvement, are: EPA's Office of Emergency Response, and EPA Regional Offices

This work assignment supports the mission of the Office of Research and Development Sustainable and Healthy Communities Research as described in the FY16-19 Research Action Plan, which relates resources, activities, outputs, audience, short- and long- term outcomes to EPA's pillars of sustainability. Additionally, this work assignment contributes to the commitments made in EPA's *Strategic Plan: 2011 to 2015*.

In support of these requirements, this contract supports the nation's drinking and wastewater infrastructure, collectively known as the Water Sector, in being informed, coordinated, and prepared to prevent, detect, respond to, and recover from terrorist attack and other intentional acts, natural disasters, and other hazards (referred to as the "all hazards" approach), which may also occur, including the needs and challenges posed by natural disasters, catastrophic events, adaptation and impacts of climate change, floods, earthquakes, pandemic illness, and any other events which impact the safety and availability of our water supply.

In pursuit of these efforts, the contractor may be tasked with preparing a correlation summary comparing the results under this work assignment to the components of the Water Security Strategy framework.

## **II. BACKGROUND:**

Historically, materials management in the United States has been handled through a variety of options that include disposal, recycling, or some form of treatment. Given the increased need to institute waste management practices that are sustainable and acknowledge critical environmental, social, and economic considerations (the three pillars of sustainability, also referred to as the triple bottom line), an examination of well-established as well as emerging waste management methods is warranted to facilitate decision-making.

Regulations that helps manage our nation's solid waste stream are almost 30 years old if not more. Since that time a large volume of data was generated on the performance of these facilities and evaluate their containment robustness into the future.

## **III. QA REQUIREMENTS:**

Tasks two (2) and three (3) in this WA require direct environmental measurements and/or the use of secondary data. Consistent with the Agency's quality assurance (QA) requirements, the contractor has already developed a complete written Project-Specific Quality Assurance Project Plan (PQAPP) as part of a WA under previous option period (WA 01-18). As such the project-specific quality assurance requirements specified under Task 0, below have been addressed. Any amendment(s) to the QAPPs shall conform to EPA requirements for QA Project Plans as defined in "EPA Requirements for Quality Assurance Project Plans" (QA/R-5) (EPA 2001).

## **IV. DETAILED TASK DESCRIPTION:**

All direction under this WA will be provided as written technical direction from the WACOR, Alternate WACOR as appropriate. If provided first as verbal technical direction to the contractor, it will be confirmed in writing within 5 calendar days, with a copy to the Contract Level Contracting Officer's



Representative (CL COR) and the Contracting Officer (CO), and is subject to the limitations of the technical direction contract clause. Each initial deliverable shall be provided to the EPA WACOR and EPA CL COR in draft form for review and comment. The contractor shall incorporate WACOR review comments into revisions of the drafts. All drafts and final reports shall be approved by the WACOR.

The contractor shall perform the following tasks:

#### **Task 0: Work Plan, Progress evaluations, and Monthly Progress Reports**

The contractor shall develop a work plan that describes how each task will be carried out. The work plan shall include a schedule, staffing plan, level of effort (LOE), and cost estimate for each task, the contractor's key assumptions on which staffing plan and budget are based, and qualifications of proposed staff. If a subcontractor(s) is proposed and subcontractors are outside the metropolitan DC area, the contractor shall include information on plans to manage work and contract costs. The work plan shall also provide an analysis of the existing and projected constraints, and the feasibility of accomplishing the project's purpose.

In addition, the contractor shall amend the project specific quality assurance plan (PQAPP), if needed, and ensure the quality of secondary data used to complete these tasks. This task also includes monthly progress and financial reports. The monthly progress report shall indicate, in a separate QA section, whether significant QA issues have been identified and how they are being resolved. Monthly financial reports must include a table with the invoice LOE and costs' broken out by the tasks in this WA.

In addition, in each monthly progress report, the contractor shall, at the introduction to the discussion of this WA, discuss actual progress toward achieving the purpose of this WA, , including problems encountered, issues that may need to be resolved, and anticipated timing for completing the goals of the WA. The contractor shall provide an overview of contract projects, striving to implement efficiencies in performance when complimentary requirements are issued. The contractor shall assure that duplication of effort relative to other ongoing work assignments under this contract is not occurring

Deliverables: Work plan, PQAPP and monthly progress and financial reports.

#### **Task 1: Programmatic support**

The contractor shall provide support for the area of sustainable materials management in terms analysis including the development, editing, and updating as necessary bulletins, advisories, reports, guidance document, fact sheets, and other outreach materials related to the research area. The contractor shall support, assess, summarize and provide reports and project files related to status, strategic planning, cost/benefit and/or economic impact analysis for Sustainable Materials Management initiatives. The number of anticipated initiatives to support is 2.

The contractor shall perform technical peer review of documents and materials related to the topics described in this WA, which were prepared by entities other than the contractor the contractor's team members and consultants. No peer review or review of technical or analytical documents should be undertaken by the contractor on documents, data, or studies contributed to, or completed by the contractor, contractor's team members, or its consultants.

The contractor shall follow all procedures concerning COI and Ethics related to the peer review process outlined in Section 3.4.5 of the EPA's Science Policy Council Handbook on Peer Review, (EPA/100/B-

06/002, 3rd Edition) or the most recent rendition of that handbook. The Handbook can be found electronically at the EPA website, <http://www.epa.gov/peerreview> and should be considered the guidance document for all elements of the peer review process.

The specific processes and responsibilities involved with the Peer Review task include:

- Selecting appropriate subject matter experts as peer reviewers and ensuring that they meet the qualification stipulated in the EPA peer Review Handbook;
- Developing the charge to the peer reviewers;
- Providing peer review support to the reviewers, including literature searches and related document
- The contractor will maintain communication with the reviewers to ensure that the charge is clear and that the work is on schedule. In addition, the contractor will establish appropriate mechanisms to provide compensation to the reviewers.
- Providing logistical and facilitation support to the peer review workshop(s) or meeting(s); transcribing, compiling and distributing all post meeting comments, proceedings, and summaries, the cost of the workshop(s) or meeting(s) shall not exceed \$19,000; and
- Providing a final document to the EPA CL COR/WA COR including comments, alternatives, dissenting views, sources relied upon, and recommendations.

The contractor shall is also expected to schedule five (3) person-trips to update the WACOR and other EPA employees in Cincinnati on the progress of the task.

Deliverables:

1. Programmatic support in the area of sustainable materials management upon the technical direction of the WACOR

**Task 2: Long-term performance of Subtitle D landfills**

In 2002 the EPA published a report “Assessment and Recommendations for Improving the Performance of Waste Containment Systems” EPA/600/R-02/099. Building on this report, there is a need to generate similar type of data and field performance as it pertains to Subtitle D (municipal solid waste landfills). The contractor shall evaluate the field performance of engineered systems (e.g., liners and covers) for at least ten (10) Subtitle D landfills that are nearing the end 30 years post closure care time regulatory limit. The ten landfill sites will be identified with consultation with the WACOR. This task may involve the contractor traveling to these sites to collect data needed for the completion of the task. The contractor shall evaluate the available information on field performance of these landfills, collect and analyze liquid management data for Subtitle D landfills, Evaluate problems that have occurred in these systems and assess the adequacy of EPA HELP model as a predictor of head on the liner and the LandGEM model as a predictor of gas generation at these sites.

During option period 1, the contractor collected site specific data to evaluate the performance of landfill sites. Based on that data, the contractor shall develop a report evaluating the following aspects of solid waste landfill performance and its impact on water resources. Specifically, the report should include some of the following questions:

- 1) Engineered Systems
  - a) What is the nature, frequency and significance of identified problems in liner system?
    - i) Perimeter well monitoring
    - ii) Contaminants migration off site

- b) What conclusions can be drawn from available leachate collection system hydraulic efficiencies of liners?
  - c) What is the nature, frequency and significance of identified problems in the final cover systems at these facilities?
    - i) Generic subtitle D prescribed covers
    - ii) Exposed geo-membrane covers
    - iii) Evapo-transpiration covers
    - iv) Others
  - d) What is the nature, frequency and significance of identified problems in the gas collection and management system?
- 2) Leachate Generation and Collection:
- a) Volume of leachate generated by closed Subtitle D landfills and the effects of site location (climatic region) and waste type on leachate generation rates?
  - b) What are the trends observed with leachate generation volume?
  - c) What is the leachate chemistry at these sites?
  - d) How the leachate generation rates using the EPA's HELP model compares to actual leachate generation rates at the site?
- 3) Landfill Gas Generation and Collection
- a) Volume of gas generation by closed Subtitle D landfills and the effects of site location (climatic region) and waste type on gas generation rates?
  - b) What are the trends observed with gas generation volume?
  - c) What is the landfill gas composition at these sites?
  - d) How the gas generation using EPA's LandGEM model compares to actual gas generation rates at the site?
- 4) What are the financial cost of post closure care?
- a) Cost of upkeep (regular maintenance)
  - b) Cost of sampling, data collection and management
  - c) Engineering support

Data for this report has been collected during option period 1. Thus the contractor is expected to make no more than two (1) person-trips for site visits. The contractor is also expected to schedule three (3) person-trips to update the WACOR and other EPA employees in Cincinnati on the progress of the task.

#### Deliverables:

Final Draft Report long-term performance of subtitle D landfills is due to the EPA 4 months after WA approval. Second draft report is due to EPA within 10 months of WA approval.

### **Task 3: Construction and Demolition Debris Summary**

Construction and Demolition (C&D) debris is part of the municipal waste stream and is generated from the construction, renovation, repair, and demolition of structures such as residential and commercial buildings, roads, and bridges. The composition of C&D waste varies for these different activities and structures. Overall, C&D waste is composed mainly of wood products, asphalt, drywall, and masonry; other components often present in significant quantities include metals, plastics, earth, shingles, insulation, and paper and cardboard. It is often disposed of in unlined impoundments with little or no effluent collection system. This management process is becoming more and more unsustainable as effluent from these impoundments is causing groundwater and air contamination. Furthermore, this disposal process is proving to be a disincentive for generators to recycle these types of materials. The contractor shall develop a short report outlining EPA/ORD's research efforts into construction,

demolition debris.

The summary should cover the following EPA reports:

- EPA/600/R-13/303
- EPA/600/R-14/039
- EPA/600/R-14/375
- EPA/600/R-15/232
- EPA/600/R-15/111
- Yet to be published report on state of the practice for the recycling of construction and demolition debris
- Two minor internal documents

Deliverables:

A draft report “Materials Management Options for Construction and Demolition Debris” is due to the EPA 3 months after QA approval. Final report is due within 10 months of WA approval.

**Task 4: Hydrologic Evaluation of Landfill Performance (HELP) Model**

Over the past year, the government has successfully migrated the Hydrologic Evaluation of Landfill Performance Model (HELP) from Fortran 77 to VBA code. The contractor shall develop and enhanced user interface for the Excel-VBA based HELP model. Furthermore, the contractor shall develop a “User Guide” for the new model.

Deliverables:

An update interface and a “User Guide” for the HELP model.

**V. SCHEDULE/DELIVERABLES**

1. Work plan: In accordance with contract terms
2. QAPP(s): Three (3) weeks after TD work plan approval, edits, amendments will occur as the WA needs and requested by the WAOR
3. Progress reports: Delivered to WACOR monthly
4. Progress meetings: Conducted with the WACOR monthly
5. A draft report “Materials Management Options for Construction and Demolition Debris” is due to the EPA 3 months after QA approval. Final report is due within 10 months of WA approval.
6. Final Draft Report long-term performance of subtitle D landfills is due to the EPA 4 months after WA approval. Second draft report is due to EPA within 10 months of WA approval.
7. An updated interface for the HELP model within 10 months of WA approval
8. User Guide for the HELP model. Within 10 months of WA approval.
9. Programmatic support in the area of SMM upon the technical direction by the EPA WACOR

**VI. REPORTING REQUIREMENTS**

1. Monthly Progress Reports (including a progress evaluation discussion)
2. Monthly Financial Reports
3. Development and or update Project Specific PQAPP as needed for any of the tasks
4. Reports requested by the WACOR under task 1 of this WA

5. Draft Report “long-term performance of subtitle D landfills”
6. Final Report “Materials Management Options for Construction and Demolition Debris Management”

## **VII. GREEN MEETINGS AND CONFERENCES**

The contractor shall follow the provision of EPA prescription 1523.703-1, *Acquisition of environmentally preferable meeting and conference services (May 2007)*, for the use of off-site commercial facilities for an EPA event, whether the event is a meeting, conference, training session, or other purpose.

Environmental preferability is defined at FAR 2.101, and shall be used when soliciting quotes or offers for meeting/conference services on behalf of the Agency.

## **VIII. CONFERENCES AND WORKSHOPS**

The contractor shall immediately alert the WACOR to any anticipated event under the work assignment which may result in incurring an estimated \$20,000 or more cost, funded by EPA, specific to that event, meeting, training, etc. Those costs would include travel of both prime and consultant personnel, planning and facilitation costs, including all outlays for conference preparation, AV and rental of venue costs, etc. The EPA WACOR will then prepare for approval the internal paperwork for the event and will provide it to the CO. The CO will advise the contractor when appropriate signatures have been obtained. At that point, effort can proceed for the event. If the event is being sponsored by another EPA organization, the organization providing the planning is responsible for the approval.

Any event which meets the definition of a “conference,” with total net expenditures greater than \$20,000, is required to submit EPA Electronic Form 5170 and Form 5170-A (with cost estimates/actuals). In the case the workflow system is down and CORs require emergency approval, they can submit EPA Form 5170 (PDF) (2pp, 93K) (with cost estimates) to [conference@epa.gov](mailto:conference@epa.gov).

## **IX. SOFTWARE APPLICATION AND ACCESSIBILITY (SECTION 508 REHABILITATION ACT AND AMENDMENTS)**

Software Application files, if delivered to the Government, shall conform to the requirements relating to accessibility as detailed to the 1998 amendments to the Rehabilitation Act, particularly, but not limited to, § 1194.21 Software applications and operating systems and § 1194.22 Web-based intranet and internet information and applications. See: <http://www.section508.gov/>

Preferred text format:	MS Word, 8.0 or higher (Office 2007 or higher)
Preferred presentation format:	Power Point, Office 2007 or higher
Preferred graphics format:	Each graphic is an individual GIF file
Preferred portable format:	Adobe Acrobat, version 6.0

The WACOR shall identify which of delivered products will require 508 compliance.

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### ***QUALITY ASSURANCE SURVEILLANCE PLAN for WSD’s Mission Support***

#### **Quality Assurance Surveillance Plan**

The requirements contained in this WA are considered performance-based, focusing on the Agency's desired results and outcomes. The contractor shall be responsible for determining the most effective means by which these requirements will be fulfilled. In order to fulfill the requirements, the contractor shall design innovative processes and systems that can deliver the required services in a manner that will best meet the Agency's performance objectives. This performance-based requirement represents a challenge to the contractor to develop and apply innovative and efficient approaches for achieving results and meeting or exceeding the performance objectives, measures, and standards described below. The Contractor's performance will be reflected in the positive or negative evaluation offered by the Agency in the Contractor Performance Evaluation (CPE) which is evaluated annually (per the "Contractor Performance Evaluation" clause in the contract). The WACOR shall submit a complete annual review of the areas outlined in the Quality Assurance Surveillance Plan (QASP), included in the contract, which will then be utilized by the CL COR in preparing the overall evaluations submitted annually in response to the Contractor Performance Evaluation requirements in the contract.

Performance Requirement	Measureable Performance Standards	Surveillance Method	Incentives/ Disincentives
<p><b>Management and Communications:</b> The Contractor shall maintain contact with the EPA Contracting Officer (CO), Contract Level Contracting Officer's Representative (CL COR), and Work Assignment Contracting Officer's Representative (WACOR) throughout the performance of the contract and shall immediately bring potential problems to the attention of the EPA CL COR and appropriate WACOR. In cases where issues have a direct impact on project schedules, cost, time, or quality, the contractor shall provide options for EPA's consideration on resolving the issues or mitigating their impacts.</p>	Any issue adversely impacting project schedules, cost, time, or quality shall be brought to the attention of the EPA CL COR and appropriate WACOR within 3 work-days of occurrence.	100% of active work assignments (WA) will be reviewed by the EPA WACORs (via the monthly progress report) to identify unreported issues. The EPA WACORs will report any issues to the EPA CL COR who will bring the issue(s) to the Contractor's attention through the CO.	<p>Two or more incidents per contract period of performance where the contractor does not meet the measureable performance standard will be considered unsatisfactory performance and will be reported as such in the CPARS Performance Evaluation System under the category of <b>Management</b>.</p> <p>Fewer than two incidents per contract period of performance where the contractor does not meet the measureable performance standard will be considered satisfactory performance and will be reported as such in the CPARS Performance Evaluation System under the category of <b>Management</b>.</p>
<p><b>Cost Management and Control:</b> The Contractor shall monitor, track, and accurately report level of effort, labor cost, other direct cost, and fee expenditures to EPA through progress reports and approved special reporting requirements. The Contractor shall assign an appropriate level of skilled personnel to all tasks, practice and encourage</p>	The contractor shall manage costs to the level of the approved cost estimate on each individual WA. The contractor shall notify the EPA WACOR, CL COR, and CO when 75% of the approved cost estimate for any particular WA is reached. If a contractor fails to manage and control cost, any resultant overrun cannot exceed the total contract obligation for that period.	100% of the active WAs under the contract will be reviewed by the EPA CL COR and appropriate WACOR monthly (via meetings, monthly progress reports & milestones established for each deliverable) to compare actual versus projected expenditures. The EPA CL COR shall review the Contractor's monthly progress reports and request the WACOR's verification	<p>If the contractor does not meet the measurable performance standards in an applicable contract period of performance it will be assigned a rating of Unsatisfactory in CPARS under the category of <b>Cost Control</b>.</p> <p>A satisfactory rating will be reported in the CPARS Performance Evaluation System under the category of Cost Control if the contractor meets the</p>

Performance Requirement	Measureable Performance Standards	Surveillance Method	Incentives/ Disincentives
time management, and ensure accurate and appropriate cost control.		of expenditures before authorizing invoice payments.	measureable performance standards and accurately reports the costs in the progress reports according to the requirements in the "Reports of Work" attachment to the RFP.
<b>Timeliness:</b> Services and deliverables shall be in accordance with schedules stated in each WA, unless amended or modified by an approved EPA action.	No more than 15% of all deliverables per WA shall be submitted more than 3 work days past the due date.	100% of the active WAs/deliverables under the contract will be reviewed by the EPA CL COR/WACOR monthly (via monthly progress report & milestones established for each deliverable) to compare actual delivery dates against those approved.	If the contractor does not meet the measurable performance standards per WA during an applicable period of performance, it will be assigned a rating of Unsatisfactory in CPARS under the category of <b>Schedule</b> .  A satisfactory rating will be reported in the CPARS Performance Evaluation System under the category of <b>Schedule</b> if the contractor meets the measureable performance standards.
<b>Technical Effort:</b> The Contractor shall abide by its QMP and QAPPs for individual WAs in performing services and providing the support on this contract.	No more than 15% of deliverables and work products for any WA furnished to EPA for review by CL COR/WACOR and QAO shall require revisions to meet the requirements of the QMP and QAPP for the WA.	100% of active WAs/deliverables (and work products) will be reviewed by the EPA CL COR/WACOR to identify noncompliance issues with the QMP and QAPPs for individual WAs.	If the contractor does not meet the measurable performance standards per work assignment it will be assigned a rating of Unsatisfactory in CPARS under the category of <b>Technical (Quality of Product)</b> .  A satisfactory rating will be reported in the CPARS Performance Evaluation System under the category of <b>Technical (Quality of Product)</b> if the contractor meets the measureable performance standards.





<b>EPA</b> United States Environmental Protection Agency Washington, DC 20460 <b>Work Assignment</b>		Work Assignment Number 02-20																																																																		
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Contractor CSRA LLC		Specify Section and paragraph of Contract SOW 3.2, 3.4																																																																		
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Comments: In accordance with clause B.1 immediate start is authorized for this work assignment beginning on August 1, 2017. If the work plan is not approved within 35 calendar days after receipt of the work plan, the contractor shall stop work.																																																																				
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<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Line</th> <th>DCN (Max 6)</th> <th>Budget/FY (Max 4)</th> <th>Appropriation Code (Max 6)</th> <th>Budget Org/Code (Max 7)</th> <th>Program Element (Max 9)</th> <th>Object Class (Max 4)</th> <th>Amount (Dollars)</th> <th>(Cents)</th> <th>Site/Project (Max 8)</th> <th>Cost Org/Code</th> </tr> </thead> <tbody> <tr><td>1</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>2</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>3</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>4</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>5</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </tbody> </table>			Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code	1											2											3											4											5										
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Work Assignment Manager Name   David Meyer  <div style="display: flex; justify-content: space-between;"> <div>_____ (Signature)</div> <div>_____ (Date)</div> </div>		Branch/Mail Code: Phone Number: 513-569-7194 FAX Number:																																																																		
Project Officer Name   Nancy Parrotta  <div style="display: flex; justify-content: space-between;"> <div>_____ (Signature)</div> <div>_____ (Date)</div> </div>		Branch/Mail Code: Phone Number: 202-564-5260 FAX Number:																																																																		
Other Agency Official Name  <div style="display: flex; justify-content: space-between;"> <div>_____ (Signature)</div> <div>_____ (Date)</div> </div>		Branch/Mail Code: Phone Number: FAX Number:																																																																		
Contracting Official Name   Donna Reinhart <div style="display: flex; justify-content: space-between;"> <div> <b>DONNA</b>          (Signature)       </div> <div>         Digitally signed by DONNA          REINHART          DN: c=US, o=U.S. Government,          ou=USEPA, ou=Staff, cn=DONNA          REINHART, dnQualifier=0000010546          Date: 2017.07.27 08:42:06 -04'00'       </div> </div>		Branch/Mail Code: Phone Number: 513-487-2114 FAX Number:																																																																		

**PERFORMANCE WORK STATEMENT**  
**CSRA EP-C-15-012**  
**Work Assignment No. 02-20**  
**Period of Performance: 8/1/17-7/31/18**

**I. ADMINISTRATIVE:**

**A. Title: Sustainable Materials Management Life Cycle Assessment (SMM LCA)**

**B. Work Assignment Manager:**

Wesley Ingwersen  
National Risk Management Research  
Laboratory/Land and Materials  
Management Division/Life Cycle Decision  
Support Branch  
26 W. Martin Luther King Dr.  
Cincinnati OH 45268  
513-569-7602  
[Ingwersen.wesley@epa.gov](mailto:Ingwersen.wesley@epa.gov)

**Alternate Work Assignment Manager:**

David Meyer  
National Risk Management Research  
Laboratory/Land and Materials Management  
Division/Life Cycle Decision Support  
Branch  
26 W. Martin Luther King Dr.  
Cincinnati OH 45268  
513-569-7194  
[Meyer.david@epa.gov](mailto:Meyer.david@epa.gov)

**C. Quality Assurance:**

Task(s) 1 through 4 in this WA require the use of primary and/or secondary data and the development of software, as did work performed under WA 00-20 and 01-20. Consistent with the Agency's Quality Assurance (QA) requirements, the contractor prepared a Project Specific Quality Assurance Project Plan (PQAPP) for WA 00-20. Since no significant changes in data collection are expected between WA 00-20 and the work described in Tasks 1-4, the PQAPP for WA 00-20, G-STD-0030017-QP-1-0, approved 09/22/2015, shall be used for Tasks 1-4. Task 5 in this WA is a continuation of Tasks 1-5 under WA-01-21. The QAPP developed for that task, G-STD-0017848-QP-1-2, shall be used for Task 5. Task 6 in this WA is a continuation of Task 6 under WA-01-21. The QAPP developed for that task, G-STD-0030965-QP-1-0 approved on 4/7/2017, shall be used for Task 6.

**D. Background:**

As communities seek to become more sustainable, they are faced with decisions surrounding waste collection and disposal, transportation options, land use planning, and infrastructure needs, all of which can affect climate change and water resources. These decisions are made with the understanding that effective and sustainable environmental protection is linked to human health and quality-of-life, economic opportunity, and community vitality. For example, the processing and production of materials in these communities provide economic opportunity, but also represent sources of environmental emissions. Further, there is a recognized environmental justice component to sustainable materials management (SMM): minority populations and/or low-income populations bear a disproportionate amount of adverse health and environmental effects associated with the life cycle of the materials of commerce – from resource extraction, material processing/production, transportation, use, recycling, and on to ultimate disposal/destruction. In order to conserve land, minimize land contamination,

minimize emissions to air and water, and yield equitable co-benefits throughout a community, materials must be extracted, manufactured and used effectively and efficiently, their application reduced, reused, recycled, and their disposal/management focused on a life cycle basis while preserving their function. The Life Cycle Decision Support Branch (LCDSB) within the National Risk Management Research Laboratory (NRMRL) of US EPA's Office of Research and Development (ORD) is developing the necessary models and tools to support the use of life cycle assessment (LCA) by the Office of Solid Waste and Emergency Response (OSWER), the Office of Water (OW), the Office of Air and Radiation (OAR), and Regional Offices to promote SMM within states and communities.

## **II. OBJECTIVE:**

The contractor shall support the priorities and requirements of the Life Cycle Decision Support Branch as related to the SMM activities.

This work assignment supports the mission of EPA and authority as described in the Resources Conservation and Recovery Act (RCRA). The Sustainable Materials Management strategy designed to meet part of EPA's obligations under this statute describes the need for a life cycle approach.

The intended audience for this project are regions, states and communities seeking to implement sustainable materials management strategies that use a life cycle perspective, as well as other parties looking for data and methods to support life cycle assessment.

This work will be completed commensurate with Sections 3.2 and 3.4 of the Contract Level PWS.

## **III. TASK DETAIL:**

The contractor shall perform the following tasks:

### **Task 0 - Work Plan Submission:**

The contractor shall prepare a detailed work plan and budget for the accomplishment of the indicated tasks in accordance with the clause Work Assignments (EPAAR 1552.211-74). The work plan shall include a description of (a) proposed staff, (b) the number of hours and labor classifications proposed for each task, broken down to task level, to include both prime contractor and subcontractor labor, and (c) a list of deliverables, with due dates and schedule for deliverables.

In addition, the contractor shall use the PQAPP prepared under Contract EP-C-15-012 for WA 00-20, as noted above, and ensure the quality of primary and/or secondary data and any software developed to complete these tasks.

In addition, the contractor shall prepare a statement indicating that this WA is a continuation of WA 1-20 and 1-21. This task also includes monthly progress and financial reports, which are to be submitted pursuant to Attachment 2 of the contract. Monthly financial reports must include

a table with the invoice level of effort (LOE) and costs broken out by the tasks in this WA. The monthly progress report shall indicate, in a separate QA section, whether significant QA issues have been identified and how they are being resolved. The contractor shall immediately notify the Contract Level Contracting Officer's representative (CLCOR) Project Officer and EPA WA Contracting Officer's Representative (COR) if any changes to the collection and analysis of the data is needed and prepare a PQAPP accordingly.

The contractor shall immediately alert the EPA WACOR to any anticipated event under the work assignment which may result in incurring an estimated \$20,000 or more cost, funded by EPA, specific to that event (e.g., meeting or training). Those costs would include travel of prime and consultant personnel, planning and facilitation costs, audio/visual, and rental of venue costs. The EPA WACOR will prepare approval internal paperwork for the event and will advise the contractor when appropriate signatures have been obtained. At that point, effort can proceed for the event. If the event is being sponsored by another EPA organization, the organization providing the planning is responsible for the approval.

### **Task 1 – USEEIO Updates, Extensions, and Automation**

USEEIO is a model developed under the previous periods of performance in this work assignment. USEPA working with the contractor has also developed state versions of USEEIO. The model combines economic and environmental data at a resolution of ~390 goods and services to characterize direct and indirect environmental and economic effects of those goods and services and associated materials. The economic data are compiled in the form of input-output tables and the environmental data in the form of satellite tables. Recently the modeling effort has evolved from spreadsheets to using code (primarily R) to create the satellite tables and input-output tables, which is archived at <https://github.com/usepa/useeio>. This task is reserved to make updates to those tables, add additional satellite table and input-output table extensions, and further automate the creation of USEEIO and state-based models. These updates may include:

- Updates to the underlying input-output tables based on updated BEA and US Census data
- Extensions of the input-output and satellite tables to model other world regions
- Updates to the environmental satellite accounts based on updated or newly identified sources of environmental data
- Incorporation of new satellite tables for additional environmental resources/emissions
- Incorporation of improved data for state models
- Automation for creation of satellite tables using code
- Data collection for modeling various SMM-related scenarios in USEEIO and state-models
- Addition of uncertainty ranges for satellite table and economic transaction data
- Improved documentation of the model

The specific updates will be specified by the WACOR.

### **Deliverables:**

- USEEIO 2.0 using automated model building approach, incorporating the most recent data available for building the satellite tables
- Code for creating multi-region state-based models for a user-selected state, at the same detailed level of resolution as the USEEIO 2.0.

- Documentation of USEEIO 2.0 updates and state-based models in the form of drafts of sections of peer-reviewed manuscripts and conference presentation slides

### **Task 2 – Data Analysis Support**

As directed by the WACOR, the contractor shall provide general support to EPA LCA researchers on performing data analysis tasks for life cycle assessment for the duration of the period of performance. Data analysis work should be performed in either the R or Python programming languages, and code should be documented and designed for reuse. High-level consulting on the organization and management of code for data analysis shall be provided at the beginning of each data analysis that requires more than 40 hrs of labor to maximize reusability and minimize redundancy in the coding effort.

**Deliverable:** Technical support for data analysis for the duration of the period of performance.

### **Task 3 – Support for Scenario Modeling for SMM Strategies in USEEIO**

The USEEIO model described in Task 1 provides baseline results for the US or a state. The model was developed with the intention of modeling scenarios involving potential changes to the baseline system through implementation of SMM strategies. Such changes may include technological, structural, or behavior changes in industry or by consumers. Because such changes could potentially reverberate throughout the US or state system, modeling of these changes can be complex. Particularly, because USEEIO is based on underlying economic input-output tables, modeling such scenarios can require econometric methods. In this task, EPA seeks expertise from economists specializing in modeling changes within the input-output framework. EPA will work with the contractor to define generic scenario types and provide insight on how well these scenario types can be modeled within USEEIO. The contractor shall then propose generalized methods that can be used to model those scenarios, and provide support for modeling example scenarios provided by EPA.

**Deliverable:** Documentation in the form of sections of a peer-review manuscript describing methods for scenario modeling in USEEIO and implementation of one or more examples.

### **Task 4 – USEEIO API and IOMB Support**

In the previous periods of performance for this work assignment, the contractor developed a program for assembly and modeling of the IO models like USEEIO called the IO Model Builder, or IOMB (<https://github.com/USEPA/IO-Model-Builder>). The contractor has also developed an API that takes the models from the IOMB in the form of Python data types, and makes the results and details of the models publicly available via an API. This web API is used by the SMM and Value Chain Sustainability tools, aka the SMM tool suite. EPA has a need for continual support for the IOMB and the associated web API, including enhancements that are anticipated in order to provide results needed for USEEIO analysis or the SMM tool suite. EPA will provide detailed requests of updates for the IOMB and the web API, based on stakeholder and management direction, during the period of performance.

**Deliverable:** Improvements to the IOMB and the associated web API as specified by the WACOR

### **Task 5 – openLCA Software and Data Format Enhancements**

openLCA is the primary LCA modeling software used by EPA ORD for LCA studies as well as for LCA data preparation and sharing via the Federal LCA Commons. EPA has supported and collaborated on improvements to openLCA and built additional applications upon openLCA (e.g. WARM, SMM Tool) since 2012. There is a need to make continual improvement and updates to openLCA software to improve its functionality and the ways that it manages and describes data. Specifically, as the international initiative Global LCA Data Access (GLAD) has made recommendations on metadata improvements for LCA data that could be incorporated into openLCA software and the openLCA JSON-LD data format. The EPA is developing an improved master elementary flow list and nomenclature, and all the data and its functionality need to be made fully useable in openLCA software and the JSON-LD format. EPA previously worked with GreenDelta to make improvements to data quality assessment in openLCA. Further improvements are foreseen to be needed to assess model and LCIA data quality. Finally, the advance to openLCA directed by EPA over the last 5 years have not been documented in the peer-review literature, and the contract shall assist EPA with that documentation. Other enhancements to openLCA and the openLCA JSON-LD format shall be made at the request of the EPA WACOR.

#### **Deliverables:**

- openLCA software and JSON-LD formats with metadata improvements and improved handling of elementary flows
- Improved data quality management in openLCA software
- Documentation support of openLCA and format enhancements written for one or more peer-review manuscript

### **Task 6 – Ontology Development Support for Rapid Life Cycle Inventory and Exposure Modeling Using Linked Open Data in Web-based Applications**

EPA is currently developing tools and methods to incorporate linked open data into life cycle inventory and exposure modeling. The long-term vision is for many of these tools and models to work together in a broader system for Life Cycle Human Exposure Modeling. These efforts involve the use of a resource description framework (RDF) to link data using a vocabulary of data descriptors, often called ontologies or domain models, which give data context and meaning. EPA researchers, as subject matter experts, have been developing ontology pieces to support the design of the necessary tools. There is a need to have an ontology expert review and help revise new ontology pieces to make sure they are consistent, both with one another and with existing EPA ontologies. This will help guarantee seamless integration of the various tools in the future. In addition, there is a need for the contractor to create linked open datasets using the developed ontologies. Therefore, the contractor shall provide ontology review and revision for a minimum of two ontology pieces up to a maximum of four ontology pieces. The EPA WACOR shall provide all necessary reference EPA ontologies upon request for a review.

**Exposure Milestone #1, due 60 days after receipt of Work Assignment:**

Identification of key terms necessary for integration of Human Exposure Model (HEM) into the Life Cycle Assessment Ontology architecture (LCAO). Using a pragmatic format (e.g., spreadsheet if appropriate) identify and define key terms spanning HEM and LCAO, including “synonyms” describing similar concepts but with different terms, “homonyms” of the same term being used to describe different concepts in HEM and in LCAO, terms defining concepts that are similar in both domains, concepts from HEM that do not currently exist in LCAO, and any presently unnamed concepts that are being used by either HEM or LCAO that are needed to complete the architecture integration.

**Exposure Milestone #2, due 90 days after receipt of Work Assignment:**

A modified version of the bridge ontology exoMap, revised to include appropriate terms, concepts, and relationships identified in Milestone #1.

**Exposure Milestone #3, due 120 days after receipt of Work Assignment:**

Draft report, in scientific journal article format, describing the development of the bridge ontology.

**Exposure Deliverable, due 150 days after receipt of Work Assignment:**

Final report, in scientific journal article format, describing the development of the bridge ontology, incorporating comments on the draft report.

**Inventory Modeling Milestone #1:**

An ontology describing EPA’s National Emissions Inventory (NEI). The EPA WACOR shall provide a copy of the 2014 NEI in a relational database format and specify which data elements shall be included in the NEI ontology.

**Inventory Modeling Deliverable #1:**

A triplestore database built on the NEI ontology and containing the 2014 NEI data. Prior to preparing the database, the EPA WACOR shall specify the triplestore software to be used.

**IV. SCHEDULE OF DELIVERABLES:**

Specific deliverables, by Task, are detailed in the table below. All work will be determined by technical direction.

This work requires experience in the USEEIO model, advanced data analysis using R or Python, the IO Model Builder, and ontology development for chemical lineage modeling.

<b>TASK No.</b>	<b>DELIVERABLE</b>	<b>DATE DUE TO EPA</b>
<b>Task 0 - Workplan Submission</b>		
Workplan and budget		According to contract
Monthly progress reports		Monthly



<b>Task 1 - USEEIO Updates, Extensions, and Automation</b>	
USEEIO 2.0	6/30/2018
State model creation code	6/30/2018
Documentation of USEEIO improvements	7/31/2018

<b>Task 2 – Data Analysis Support</b>	
Technical support for data analysis in response to each request	To be determined by technical direction.
<b>Task 3 – Support for Scenario Modeling for SMM Strategies in USEEIO</b>	
Documentation in the form of sections of a peer-review manuscript describing methods for scenario modeling in USEEIO	June 30, 2018
<b>Task 4 – USEEIO API and IOMB Support</b>	
Improvements to the IOMB and the associated web API	To be determined by technical direction; an exact date cannot be determined prior to receiving stakeholder or management feedback
<b>Task 5 – openLCA Software and Data Format Enhancements</b>	
openLCA software and JSON-LD formats with metadata improvements and improved handling of elementary flows	To be determined by technical direction; an exact date cannot be determined prior to receiving stakeholder feedback and completion of Fed LCA Master Elementary Flow List
Improved data quality management in openLCA software	To be determined by technical direction; an exact date cannot be determined prior to determination of data quality methods
Documentation support of openLCA and format enhancements written for peer-review	June 30, 2018
<b>Task 6 – Ontology Support for Chemical Lineage Modeling</b>	
Final report, in scientific journal article format, describing the development of the bridge ontology, incorporating comments on the draft report	150 days after commencement of task

Linked open dataset of EPA's 2014 National Emissions Inventory	To be determined by technical direction based on availability of subject matter experts for creation of underlying ontology
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## **V. MISCELLANEOUS:**

### **Software Application Files and Accessibility:**

Software application files, if delivered to the Government, shall conform to the requirements relating to accessibility as detailed to the 1998 amendments to the Rehabilitation Act, particularly, but not limited to, § 1194.21 Software applications and operating systems and § 1194.22 Web-based intranet and internet information and applications. See: <http://www.section508.gov/>

The EPA WACOR shall identify which of delivered products will require 508 compliance.

## **VI. TRAVEL**

The contractor should anticipate up to 3 trips over the duration of the performance period for in-person meetings or conferences; to be determined at the discretion of the WACOR. Travel will be directly related to the scope of this Work Assignment and support advancement of the work under Tasks 1 and 5, as well as the EPA's Mission to ensure protection of human health and the environment.

## **VII. MEETINGS, CONFERENCES, TRAINING EVENTS, AWARD CEREMONIES AND RECEPTIONS**

All appropriate clearances and approvals required by Agency policy in support of any and all conference related activities and expenses, including support of meetings, conferences, training events, award ceremonies and receptions, including the form 5170 for all meetings costing more than \$20,000, shall be obtained by the EPA CL-COR as needed and provided to the Contracting Officer (CO). Work under conference related activities and expenses shall not occur until this approval is obtained and provided by the EPA CL-COR.

## **VIII. CONTRACTOR IDENTIFICATION**

Contractor personnel shall always identify themselves as contractor employees by name and organization and physically display that information through an identification badge. Contractor personnel are prohibited from acting as the Agency's official representative. The contractor shall refer any questions relating to the interpretation of EPA policy, guidance, or regulation to the CO, CL-COR and/or WACOR.

## **IX. PRINTING**

All copying and printing shall be accomplished within the limitations of the printing clause of the contract.

## **X. Technical Direction**

The Contract level COR or an authorized individual is permitted to provide technical direction. Technical direction must be within the statement of work of the contract and includes: (1) Direction to the contractor which assists the contractor in accomplishing the Statement of Work, (2) Comments on and approval of reports or other deliverables. Technical direction will be issued in writing or confirmed in writing within five (5) calendar days after verbal issuance. One copy of the technical direction memorandum will be forwarded to the Contracting Officer and the Contract Level Contracting Officer Representative.

## **XI. QUALITY ASSURANCE SURVEILLANCE PLAN:**

All task(s) identified in the performance work statement above are subject to review and approval by the EPA WACOR based on the general guidelines of the contract quality assurance surveillance plan regarding: Programmatic, cost control, timeliness/deliverables, and document development standards.

<b>EPA</b> United States Environmental Protection Agency Washington, DC 20460 <b>Work Assignment</b>						Work Assignment Number 02-20	
						<input type="checkbox"/> Other <input checked="" type="checkbox"/> Amendment Number: 000001	
Contract Number EP-C-15-012		Contract Period 08/01/2015 To 07/31/2018		Title of Work Assignment/SF Site Name			
		Base                      Option Period Number      2		Sustainable Materials Mgmt Lif			
Contractor CSRA LLC			Specify Section and paragraph of Contract SOW 3.2, 3.4				
Purpose: <input type="checkbox"/> Work Assignment <input type="checkbox"/> Work Assignment Close-Out <input checked="" type="checkbox"/> Work Assignment Amendment <input type="checkbox"/> Incremental Funding <input type="checkbox"/> Work Plan Approval			Period of Performance  From 08/01/2017 To 07/31/2018				
Comments: The purpose of this amendment is to update the WACOR to Wesley Ingwersen, and the Alternate WACOR is David Meyer.							
<input type="checkbox"/> Superfund                      Accounting and Appropriations Data <input checked="" type="checkbox"/> Non-Superfund							
SFO <input type="checkbox"/> (Max 2)                      Note: To report additional accounting and appropriations date use EPA Form 1900-69A.							
Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)      (Cents)      Site/Project (Max 8)      Cost Org/Code
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2							
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Authorized Work Assignment Ceiling							
Contract Period: 08/01/2015 To 07/31/2018		Cost/Fee:		LOE:			
This Action:							
Total:							
Work Plan / Cost Estimate Approvals							
Contractor WP Dated:		Cost/Fee		LOE:			
Cumulative Approved:		Cost/Fee		LOE:			
Work Assignment Manager Name Wesley Ingwersen						Branch/Mail Code:	
_____ (Signature)                      (Date)						Phone Number: 513-569-7602	
						FAX Number:	
Project Officer Name Nancy Parrotta						Branch/Mail Code:	
_____ (Signature)                      (Date)						Phone Number: 202-564-5260	
						FAX Number:	
Other Agency Official Name						Branch/Mail Code:	
_____ (Signature)                      (Date)						Phone Number:	
						FAX Number:	
Contracting Official Name Donna Reinhart						Branch/Mail Code:	
_____ (Signature)                      (Date)						Phone Number: 513-487-2114	
						FAX Number:	

Work Assignment Form. (WebForms v1.0)

**DONNA**  
**REINHART**

Digitally signed by DONNA

REINHART                      (Date)

DN: c=US, o=U.S. Government,  
 ou=USEPA, ou=Staff, cn=DONNA  
 REINHART, dnQualifier=0000010546  
 Date: 2017.07.27 15:40:58 -04'00'

<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: center;"> <h1 style="margin: 0;">EPA</h1> </div> <div> <p>United States Environmental Protection Agency Washington, DC 20460</p> <h2 style="margin: 0;">Work Assignment</h2> </div> </div>		<p>Work Assignment Number 02-20</p> <p> <input type="checkbox"/> Other           <input checked="" type="checkbox"/> Amendment Number: 000002         </p>								
<p>Contract Number EP-C-15-012</p>		<p>Contract Period 08/01/2015 To 07/31/2018</p> <p>Base Option Period Number 2</p>								
<p>Contractor CSRA LLC</p>		<p>Specify Section and paragraph of Contract SOW 3.2, 3.4</p>								
<p>Purpose:</p> <div style="display: flex; justify-content: space-between;"> <div> <input type="checkbox"/> Work Assignment  <input checked="" type="checkbox"/> Work Assignment Amendment  <input type="checkbox"/> Work Plan Approval           </div> <div> <input type="checkbox"/> Work Assignment Close-Out  <input type="checkbox"/> Incremental Funding           </div> </div>		<p>Period of Performance</p> <p>From 08/01/2017 To 07/31/2018</p>								
<p>Comments:</p> <p>The purpose of this amendment 2 to CSRA (EP-C-15-012) WA 02-20 is to increase the CPFF not-to-exceed ceiling to \$342,000.</p>										
<input type="checkbox"/> Superfund		<p>Accounting and Appropriations Data</p>								
<p>SFO (Max 2) <input type="checkbox"/></p>		<p>Note: To report additional accounting and appropriations date use EPA Form 1900-69A.</p>								
Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										
Authorized Work Assignment Ceiling										
Contract Period:		Cost/Fee:				LOE:				
08/01/2015 To 07/31/2018										
This Action:										
Total:										
Work Plan / Cost Estimate Approvals										
Contractor WP Dated: 08/18/2017		Cost/Fee		\$552,366.80		LOE: 5,861				
Cumulative Approved:		Cost/Fee		\$552,366.80		LOE: 5,861				
Work Assignment Manager Name Wesley Ingwersen						Branch/Mail Code:				
<div style="display: flex; justify-content: space-between;"> <div>_____</div> <div>_____</div> </div> <p style="text-align: center;">(Signature) (Date)</p>						Phone Number: 513-569-7602				
						FAX Number:				
Project Officer Name Nancy Parrotta						Branch/Mail Code:				
<div style="display: flex; justify-content: space-between;"> <div>_____</div> <div>_____</div> </div> <p style="text-align: center;">(Signature) (Date)</p>						Phone Number: 202-564-5260				
						FAX Number:				
Other Agency Official Name						Branch/Mail Code:				
<div style="display: flex; justify-content: space-between;"> <div>_____</div> <div>_____</div> </div> <p style="text-align: center;">(Signature) (Date)</p>						Phone Number:				
						FAX Number:				
Contracting Official Name Donna Reinhart						Branch/Mail Code:				
<div style="display: flex; justify-content: space-between;"> <div>Donna Reinhart</div> <div>04/10/2018</div> </div> <p style="text-align: center;">(Signature) (Date)</p>						Phone Number: 513-487-2114				
						FAX Number:				